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Section :- CE

Tutorial No. :- 02

Ques1

```
void func(int n){
    int j=1, i=0;
    while(i<n){
        i=i+j;
        j++;
    }
}
```

$j=1$ $\quad i=1$

$j=2$ $\quad i=1+2=3$

$j=3$ $\quad i=3+3=1+2+3$

$\vdots$

$j=K$ $\quad i=1+2+3---+K$

sum of K consecutive integers $\frac{K(K+1)}{2}$

$$\frac{K^2+K}{2} < n$$

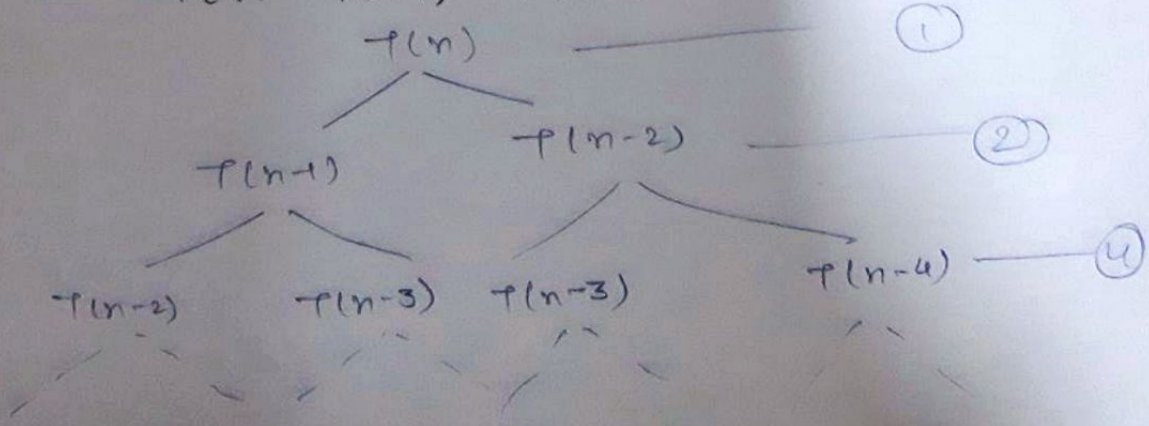
$$K^2 < n$$

$$K < \sqrt{n}$$

$$\boxed{T(n) = O(\sqrt{n})}$$

Ques2 Recursion Relation for fibonacci series

$$T(n) = T(n-1) + T(n-2)$$



$\Rightarrow 1+2+4+8---$

here $a=1, \quad r=2$

so, $\frac{a(r^n-1)}{r-1} = \frac{2^n-1}{2-1} = 2^n-1 \Rightarrow \boxed{T(n) = O(2^n)}$